Decreasing Alarm Fatigue and Increasing Patient Safety in the Setting of a Cardiac Telemetry Unit

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Background

- Alarm fatigue is a prevalent aspect of healthcare due to the increased reliability of technology in the field.
- Alarm fatigue occurs not only from accurate alarms, but also from alarms that are inaccurate. The increase in “false alarms” can lead to disarming monitors which could pose a threat to patient safety
- Excessive use of telemetry monitors does not increase detection of significant cardiac rhythm events but does increase alarm fatigue in
healthcare providers and healthcare costs to patients

Practice Change

Implement a project to adequately manage and adjust cardiac telemetry alarms in order to decrease alarm fatigue in nurses and monitor techs. The aim is to improve patient safety and outcomes.

Methods

- 1. Obtain pre-implementation cardiac alarm data
- 2. Provide education to staff along with cardiac alarm control checklists
- 3. Obtain post-implementation cardiac alarm data

References

Ryherd, E., Okcu, S., Ackerman, J., Zimring, C., Wayne, K. (2012). Noise Pollution in Hospitals: Impacts on Staff. Journal of Clinical Outcomes Management, 19(11), 491-497. Retrieved from:www.jcomjournal.com

Stoltzfus KB, Bhakta M, Shankweiler C, et al. Appropriate utilisation of cardiac telemetry monitoring: a quality improvement project. BMJ Open Quality 2019;8:e000560. doi:10.1136/ bmjoq-2018-000560

Measures and Results

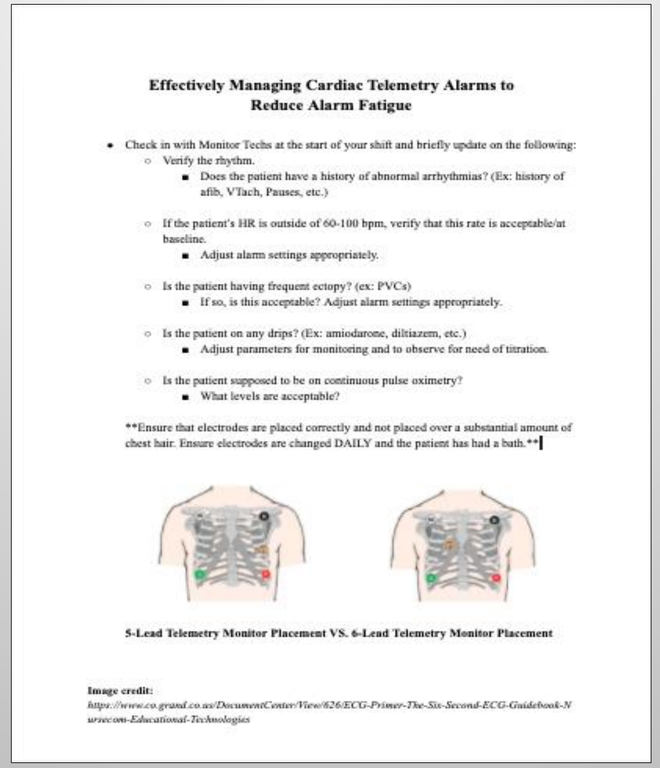
Average Number of Telemetry Alarms within 24-hour period

(n=32)

	Pre-Implementation Data	**Post-Implementation Data**
Total Average Number of Alarms in 24-hour period	2260	1690
Total Average Number of Critical Alarms in 24- hour period	6	38

** Data collected over 6 days pre-implementation and 3 days post-implementation from P6 Cardiac Telemetry

Educational Flyer



Effectively Managing Cardiac Telemetry Alarms to Reduce Alarm Fatigue

- Check in with Monitor Techs at the start of your shift and briefly update on the following:
  - Verify the rhythm.
    - Does the patient have a history of abnormal arrhythmias? (Ex: history of afib, VTach, Pauses, etc.)
  - If the patient’s HR is outside of 60-100 bpm, verify that this rate is acceptable/at baseline.
    - Adjust alarm settings appropriately.
  - Is the patient having frequent ectopy? (ex: PVCs)
    - If so, is this acceptable? Adjust alarm settings appropriately.
  - Is the patient on any drips? (Ex: amiodarone, diltiazem, etc.)
    - Adjust parameters for monitoring and to observe for need of titration.
  - Is the patient supposed to be on continuous pulse oximetry?
    - What levels are acceptable?

Ensure that electrodes are placed correctly and not placed over a substantial amount of chest hair. Ensure electrodes are changed DAILY and the patient has had a bath.

5-Lead Telemetry Monitor Placement VS. 6-Lead Telemetry Monitor Placement

Image credit:
https://www.co.grand.co.us/DocumentCenter/View/626/ECG-Primer-The-Six-Second-ECG-Guidebook-Nuvecom-Educational-Technologies

Summary/Discussion

- **Next Steps:**
  - Post handout/guidelines for accurate cardiac monitoring in common areas for future reference
  - Continue to provide education to RNs and monitor techs working in the clinical setting
- **Barriers of this Study:**
  - Limited access to alarm data
  - Limited amount of time for data collection
  - Variation of alarm adjusting from monitor technicians and nurses.

Conclusion

- Further education on alarm regulation is needed
- Education provided to nurses on P6 cardiac telemetry helped to reduce the total number of alarms
- The number of critical alarms within a 24-hour period was higher after education: Possibly due to:
  - more accurate alarm control
  - the acuity of the patients on the floor when these data were collected--meaning sicker patients with more critical telemetry results
  - the critical alarms were still being based on artifact instead of true critical results
- **Best practices should** include **checking in with monitor techs** at the start of the **shift to adjust alarm parameters** appropriately based on patient specific needs, **ensuring electrodes** are placed correctly on the patient, and **ensuring the electrodes are changed daily** and reapplied to clean, skin free of excessive hair.